

The Evolution of Dredge Pipeline Safety in an Active Recreational and Fishing Community

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Overview

- ▶ Dredge Pipelines can be a risk to public boaters
- ▶ Necessary to Float Pipelines During Dredging Operations
- ▶ Boaters are Unaware of the Pipeline
- ▶ Contractors Must Create Unique Solutions to Mitigate Risk to Public



The Sacramento - San Joaquin River Delta

- ▶ Located in Northern California at the Confluence of the Sacramento and San Joaquin Rivers
- ▶ Approx. 80 kilometers Inland from the San Francisco Bay
- ▶ Total Area of 2,990 sq. km
 - ▶ 57 Islands
 - ▶ 1,100 km of Waterways and Sloughs

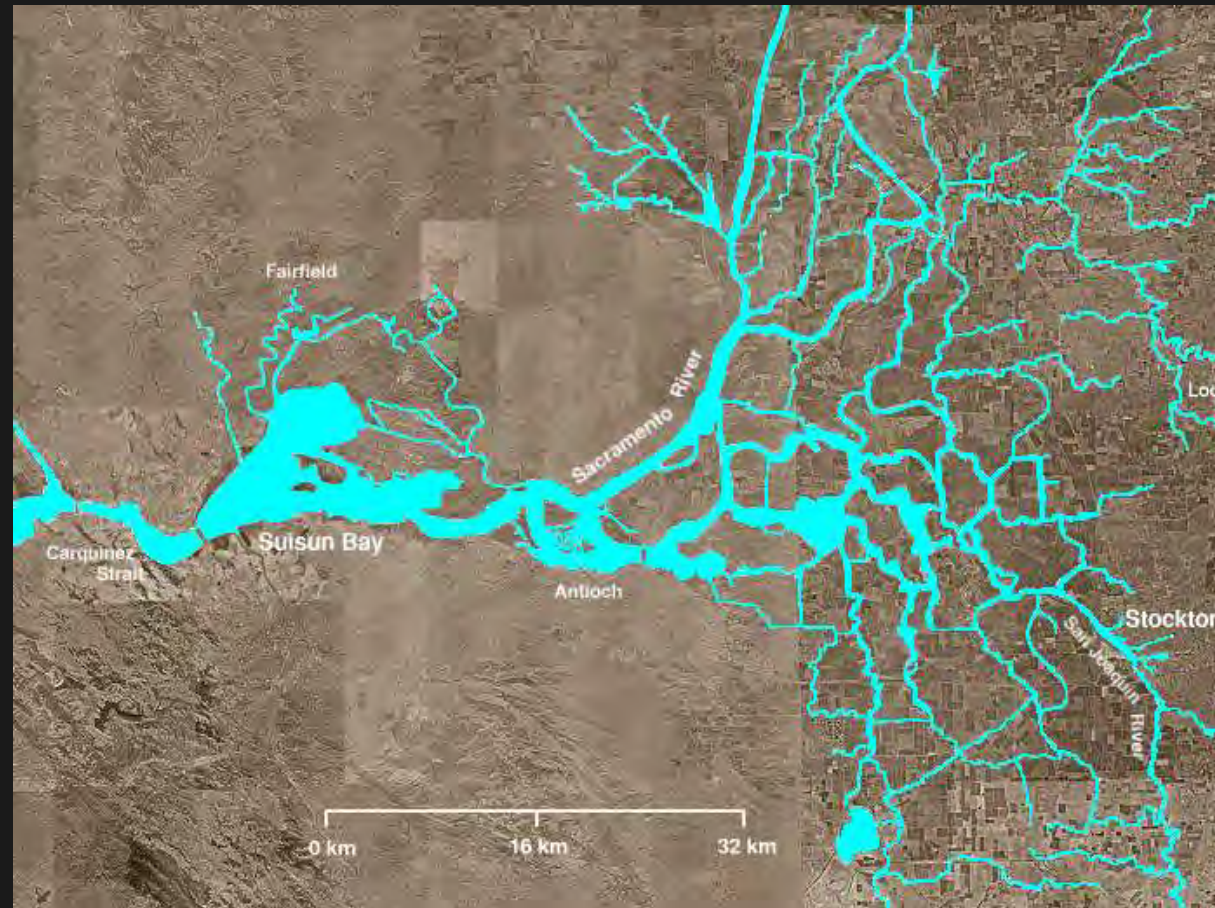


The Sacramento - San Joaquin River Delta

- ▶ Two Deep Water Ship Channels
 - ▶ Sacramento DWSC
 - ▶ Stockton DWSC
- ▶ Several Major Cities Located in/near The Delta
 - ▶ Stockton, Sacramento, Antioch, and Pittsburg
- ▶ Home to 1.3 million people
 - ▶ Large Recreational Boater and Fishing Communities



The Sacramento - San Joaquin River Delta



Initial Safety Practices

- ▶ Ross Island has been dredging in The Delta for almost 20 years
- ▶ Initially only used USCG required notifications
 - ▶ Local Notice to Mariners
 - ▶ Day Shapes and Lights
- ▶ Several incidents involving boats hitting pipeline in Late 1990's
 - ▶ Prompted taking action to increase public awareness



Initial Safety Practices

- ▶ Public Boaters are generally unaware of Dredging Operations
 - ▶ California does not require Boating License or Training
 - ▶ Boaters do not understand Day Shapes/Lights nor observe Local Notice to Mariners
- ▶ Enforceable Speed Zones
 - ▶ Ross Island was granted speed zones by each local Sheriff's Dept.
 - ▶ Created 5mph Zone in vicinity of Dredge and Pipeline

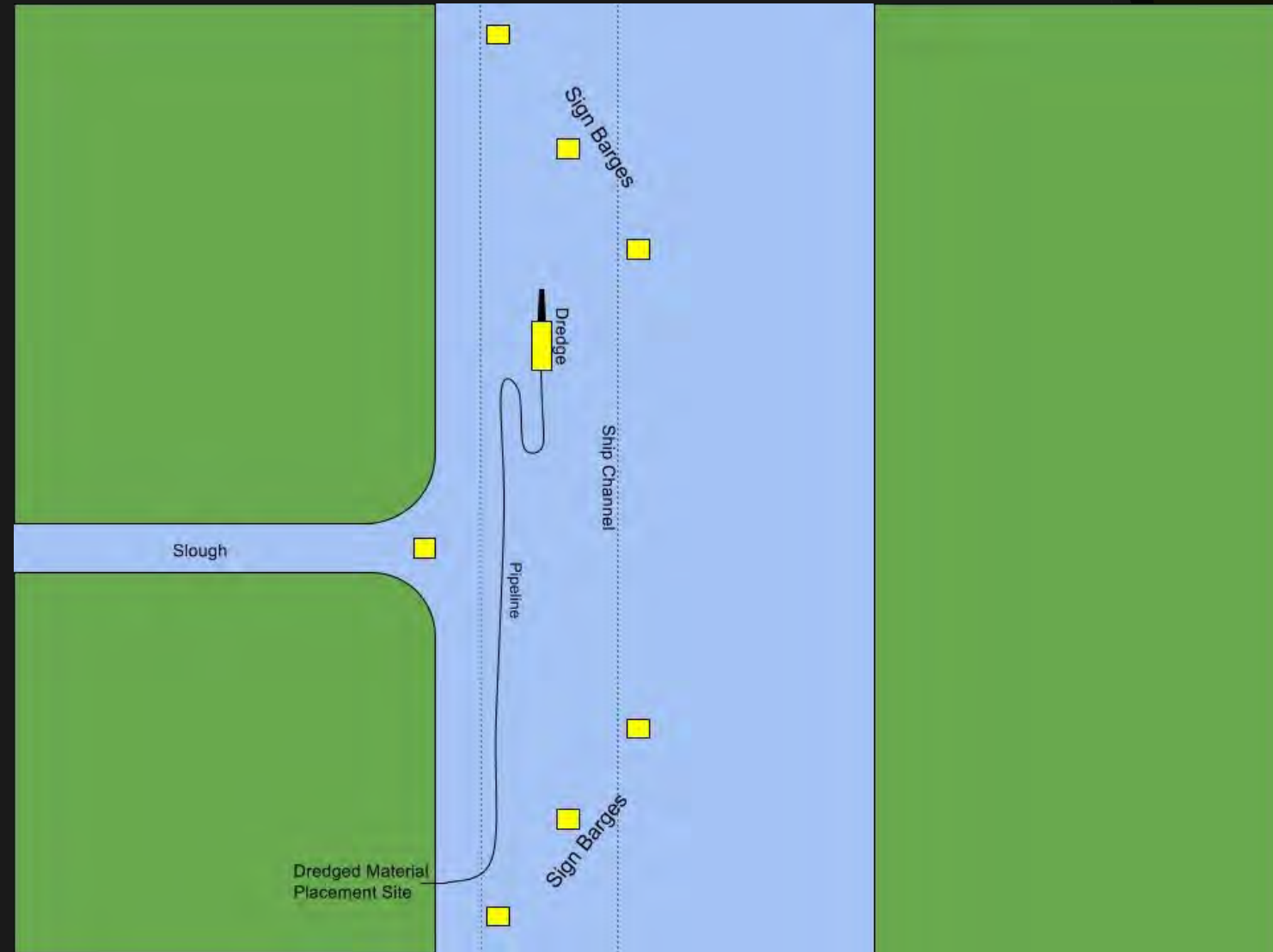


Initial Safety Practice

- ▶ Sign Barges
 - ▶ Notify Boaters of Speed Restriction
 - ▶ Used to guide boaters through work zone or block entry to unsafe waters



Basic Sign Barge Layout



Basic Sign Barge Layout *In Use*



DREDGING SUMMIT & EXPO '17



Move towards Active Safety Measures

- ▶ Speed Zone and Sign Barges improved public awareness of the Dredging Operation
- ▶ Some Boaters Ignore the Sign Barges
- ▶ Became evident something else was needed



Patrol Skiffs

- ▶ Skiffs are used to Actively Patrol Work Area
- ▶ Intercept Boaters who ignore Sign Barges
- ▶ Operator guides boaters safely through work zone



“We’re gonna need a faster boat.”

- ▶ Many different types of fast boats in The Delta
 - ▶ Most popular is the “Bass Boat”
 - ▶ Can reach speeds of 80mph or more
 - ▶ “Cigarette” Boats and Poker Runs
- ▶ Patrol Skiffs are too slow to effectively intercept the “Bass Boats”
- ▶ Need for a High Speed Safety Boat



Chase Boat

- ▶ Ross Island created the “Chase Boat”
 - ▶ Capable of intercepting high speed public boats
 - ▶ Equipped with a law enforcement style flashing amber light bar
 - ▶ Law enforcement style Loud-Hailer
- ▶ Very effective at gaining the attention of public boaters and getting them to slow down



Most Recent Efforts

- ▶ Placing Information Boards at Boat Launches near Dredge Area
 - ▶ Inform Boaters about location of the Dredge
 - ▶ Information on how to safely traverse the dredge work area
- ▶ Hand out fliers
 - ▶ Ross Island personnel hand out fliers at boat launches and marinas during busy weekends (Labor Day, Rio Vista Bass Festival)
- ▶ Contact Fishing Clubs
 - ▶ Work with local fishing clubs and tournaments to ensure safety of participants



Results of Safety Measures

- ▶ Difficult to quantify results
 - ▶ Impossible to measure the number of accidents prevented
- ▶ Accidents occur infrequently
 - ▶ Difficult to determine if there has been a decrease in accident rate



Results of Safety Measures

- ▶ Chase Boat has been very effective at intercepting high speed boats before they enter the work area
 - ▶ Only one incident since introduction of the Chase Boat: a public boater actively evaded the Chase Boat and hit the pipe
- ▶ Public is more aware of the Dredging Operation and is better informed of the potential dangers
 - ▶ Vast majority of boaters slow down and carefully transit work area



Why We Try Harder Each Day



Questions?

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